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SPECIAL FLOOD HAZARD REPORT, ALLEGHENY CREEK, BERKS COUNTY, PEN--ETC(U)

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67 SPECIAL FLOOD HAZARD REPORT

ALLEGHENY CREEK

BERKS COUNTY, PA

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PREPARED FOR
BERKS COUNTY PLANNING COMMISSION
BY

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
PHILADELPHIA, PENNSYLVANIA

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REPT. NO: DAEN/NAP-82040/SFH01-76/06

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TO THE REQUESTOR:

This Flood Plain Information (FPI) Report was prepared by the Philadelphia District office of the U.S. Army Corps of Engineers, under the continuing authority of the 1960 Flood Control Act, as amended. The report contains valuable background information, discussion of flood characteristics and historical flood data for the study area. The report also presents through tables, profiles, maps and text, the results of engineering studies to determine the possible magnitude and extent of future floods, because knowledge of flood potential and flood hazards is important in land use planning and for management decisions concerning floodplain utilization. These projections of possible flood events and their frequency of occurrence were based on conditions in the study area at the time the report was prepared.

Since the publication of this FPI Report, other engineering studies or reports may have been published for the area. Among these are Flood Insurance Studies prepared by the Federal Insurance Administration of the Federal Emergency Management Agency, Flood Insurance Studies generally provide different types of flood hazard data (including information pertinent to setting flood insurance rates) and different types of floodplain mapping for regulatory purposes and in some cases provide updated technical data based on recent flood events or changes in the study area that may have occurred since the publication of this report.

It is strongly suggested that, where available, Flood Insurance Studies and other sources of flood hazard data be sought out for the additional, and, in some cases, updated flood plain information which they might provide. Should you have any questions concerning the preparation of, or data contained in this FPI Report, please contact:

U.S. Army Corps of Engineers
Philadelphia District
Custom House, 2nd and Chestnut Streets
Philadelphia, PA 19106

ATTN: Flood Plain Mgt. Services Branch, NAPEN-M

Telephone number: (215) 597-4807

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER DAEN/NAP-82040/SFH01-76/06	2. GOVT ACCESSION NO. AD A104101	3. RECIPIENT'S CATALOG NUMBER
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19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Floods Allegheny Creek, Pa. Berks County Planning Commission Flood Plains Flood forecasting		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This special flood hazard information report was undertaken by the U.S. Army Engineer District, Philadelphia at the request of the Berks County Planning Commission. It covered the Allegheny Creek from its confluence with the Schuylkill River at Robeson Township to the study limit at Kurtz Mill Road, Brecknock Township, a distance of 10.3 miles. The hydrology, hydraulics and drainage areas of the creek were described. The data also included peak floods for 10, 50, 100 and 500 year floods, rise and duration of		

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flooding and flood profiles.

The information given within the scope of this report should be considered for its historical value. Since the publication of this report other flood insurance studies have been undertaken and should also be consulted for current information.

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SPECIAL FLOOD HAZARD INFORMATION REPORT

ALLEGHENY CREEK, BERKS COUNTY, PENNSYLVANIA

Table of Contents

	<u>Page</u>
1.0 AUTHORITY FOR STUDY	1
2.0 DESCRIPTION OF AREA AND LIMITS OF STUDY	1
3.0 HISTORY OF FLOODING	1
4.0 DESCRIPTION OF WORK	1
4.1 Surveys	1
4.2 Hydrology	2
4.3 Hydraulics	2
5.0 ACKNOWLEDGMENTS	3

TABLES

<u>Table</u>	<u>Table Number</u>	<u>Page</u>
Drainage Areas	1	4
Peak Flows for 10-Year, 50-Year, 100-Year and 500-Year Floods	2	5
Elevation Data, Bridges Across Allegheny Creek	3	6
Maximum Velocities, Selected Cross Sections	4	7
Rates of Rise and Duration of Flooding	5	8

PLATES

<u>Plate</u>	<u>Plate Number</u>	<u>Page</u>
General Map	1	At End of Report
Water Surface Profiles	2 - 5	At End of Report
Selected Cross Sections	6	At End of Report

SPECIAL FLOOD HAZARD INFORMATION REPORT
ALLEGHENY CREEK, BERKS COUNTY, PENNSYLVANIA

1.0 AUTHORITY FOR STUDY

This Special Flood Hazard Information Report was undertaken at the request of the Berks County Planning Commission with the indorsement of the Pennsylvania Department of Environmental Resources. This report was prepared by the Philadelphia District, U. S. Army Corps of Engineers under continuing authority provided in Section 206 of the 1960 Flood Control Act as amended.

2.0 DESCRIPTION OF AREA AND LIMITS OF STUDY

This report covers the Allegheny Creek from its confluence with the Schuylkill River at Robeson Township to the study limit at Kurtz Mill Road, Brecknock Township, a distance of 10.3 miles. The stream is characterized by low banks with the overbanks varying from gently rolling hills to side slopes that are extremely steep. The areas adjacent to Allegheny Creek are predominantly rural. The flood plains are generally used for agricultural purposes although there is some residential development scattered along the stream. The study areas of Allegheny Creek are shown on the General Map. A tabulation of stream mileages and respective drainage areas can be found in Table 1.

3.0 HISTORY OF FLOODING

There are no streamflow records available for Allegheny Creek, however, damaging floods have been reported to have occurred in nearby watersheds as early as 1757. Other major flood damages were reported in the Allegheny Creek Basin in July 1935 and March 1936 with the highest known flood of record to occur on June 22-23, 1972, as a result of Hurricane Agnes.

4.0 DESCRIPTION OF WORK

4.1 Surveys

Field surveyed cross sections were performed by United A & E Incorporated of Reading, Pennsylvania, under contract to the Philadelphia District, U. S. Army Corps of Engineers. Philadelphia District personnel performed bridge measurements and additional survey work.

4.2 Hydrology

There are no stream gages located on Allegheny Creek to record historical flood events. Discharge-frequency relationships were developed from regionalized discharge-frequency curves adjusted to correlate with estimated peak discharges of past flood events on Allegheny Creek and calculated peak flows from other nearby drainage basins. Peak flows were thus developed for the 10-Year, 50-Year and 100-Year frequency flood events. The 100-Year Flood is defined as the flood which occurs once in 100 years on the average and has a 1% chance of being equalled or exceeded in any year. Peak flows for the 500-Year Flood were obtained by extrapolating the discharge-frequency curve computed for flood events up to the 100-Year Flood. A tabulation of peak flows for Allegheny Creek is given in Table 2.

4.3 Hydraulics

Water surface profiles for the 10-, 50-, 100- and 500-Year Flood events for Allegheny Creek were computed using the Corps of Engineers' HEC-II Backwater Program. Starting water surface elevations for the Allegheny Creek were extrapolated from flood elevations on the Schuylkill River developed at the mouth of Antietam Creek, a neighboring watershed studied in a previous report. Water surface profiles shown in this report were developed based on existing conditions of the watershed at the time field surveys were performed. During an actual flood, debris collecting on bridges and culverts could decrease their water-carrying capacity and cause backwater effects upstream of these structures. However, since the location and extent of debris accumulation are impossible to predict, it was necessary, for the purposes of this report, to assume that bridge and culvert openings would remain unobstructed. In addition to bridges and culverts, there are 2 small dams located on Allegheny Creek within the study area. These dams have essentially no flood storage capacity, nor will they significantly alter the flow characteristics of floodwaters. Water surface profiles thus developed can be found on Plates 1 through 4. A tabulation of flood elevations at all bridges and culverts can be found in Table 3.

Typical stream cross sections on Allegheny Creek and respective water surface elevations for the four frequency-flood events are shown on Plate 5. Maximum velocities of flow which are expected to occur at these selected cross sections are given in Table 4. Predicted rates of rise and duration of flooding for the 100-Year Flood on the Allegheny Creek are shown in Table 5.

5.0 ACKNOWLEDGMENTS

The assistance and cooperation of the U. S. Geological Survey, Berks County Planning Commission, Pennsylvania Department of Environmental Resources, and private citizens in supplying data for the preparation of this report are appreciated.

Additional copies of this report can be obtained from the Berks County Planning Commission. The Philadelphia District Office of the Corps of Engineers, Department of the Army, will upon request provide technical assistance to planning agencies in the interpretation and use of the data presented as well as planning guidance and further assistance, including the development of additional technical information.

TABLE 1
DRAINAGE AREAS
ALLEGHENY CREEK

<u>Location</u>	<u>Mileage Above Mouth</u>	<u>Drainage Area Total sq. mi.</u>
<u>Allegheny Creek</u>		
At mouth	0.00	17.9
Downstream of Tributary 1	3.59	14.2
Downstream of Tributary 2	4.54	11.4
Downstream of Tributary 3	6.43	8.0

TABLE 2

PEAK FLOWS FOR THE 10-YEAR, 50-YEAR, 100-YEAR AND 500-YEAR FLOODS

<u>Location</u>	Mileage Above <u>Mouth</u>	Drainage Area <u>sq. mi.</u>	<u>Discharges</u>			
			10- Year <u>Flood</u> cfs	50- Year <u>Flood</u> cfs	100- Year <u>Flood</u> cfs	500- Year <u>Flood</u> cfs
<u>Allegheny Creek</u>						
Confluence with Schuylkill River	0.00	17.9	1,975	4,000	5,150	8,800
Downstream of Tributary 1	3.59	14.2	1,690	3,470	4,450	7,670
Downstream of Tributary 2	4.54	11.4	1,480	2,990	3,910	6,840
Downstream of Tributary 3	6.43	8.0	1,090	2,300	2,970	5,250

TABLE 3
ELEVATION DATA
BRIDGES ACROSS ALLEGHENY CREEK

<u>Identification</u>	<u>Mileage Above Mouth</u>	<u>Underclearance Elevation Feet - Mean Sea Level Datum</u>	<u>Water Surface Elevation (a)</u>	
			<u>100-Year Flood</u>	<u>500-Year Flood</u>
			<u>Feet - Mean Sea Level Datum</u>	<u>Feet - Mean Sea Level Datum</u>
<hr/>				
<u>Allegheny Creek</u>				
Old River Road	0.07	161.1	180.1	185.6
Schuylkill Canal				
Viaduct (Abandoned)	0.20	167.4	180.1	185.6
Pa. Rte. 724	0.32	176.2	180.1	185.6
Penn Central RR	0.43	191.2	181.6	185.6
Green Hill Road	1.30	235.0	240.6	243.6
White Bear Road	1.49	244.7	244.8	247.5
Private Road	2.14	255.4	262.8	265.0
Private Road	2.38	261.3	267.0	268.5
Private Road	2.40	264.1	272.1	274.0
Evergreen Road	2.78	270.5	277.3	280.7
Green Hill Road	2.85	273.0	278.2	281.4
Seton Road	4.09	305.6	307.1	307.6
Pa. Rte. 10	4.69	320.1	317.8	319.9
Interstate				
Rte. 176	4.81	348.0	324.1	326.5
Private Road	5.28	333.4	336.2	337.2
Private Road	5.50	338.3	342.4	343.2
Gumbart Road	5.69	346.3	346.2	349.9
Private Road	6.15	354.2	355.7	355.8
Hartz Store Road -				
Pa. Rte. 325	6.49	363.0	363.2	364.3
Gebhart School				
Road	7.63	394.8	400.2	401.8
T-328	8.39	427.1	427.6	432.4
T-324	9.07	442.5	446.6	447.6
Private Road	9.52	465.8	470.1	471.1
Access Road to New				
Development	9.94	494.4	493.0	494.0
Kurtz's Mill Road	10.30	513.7	515.2 (b)	518.9 (b)

(a) Flood elevations are reported for the upstream side of the bridge.

(b) Downstream side of bridge.

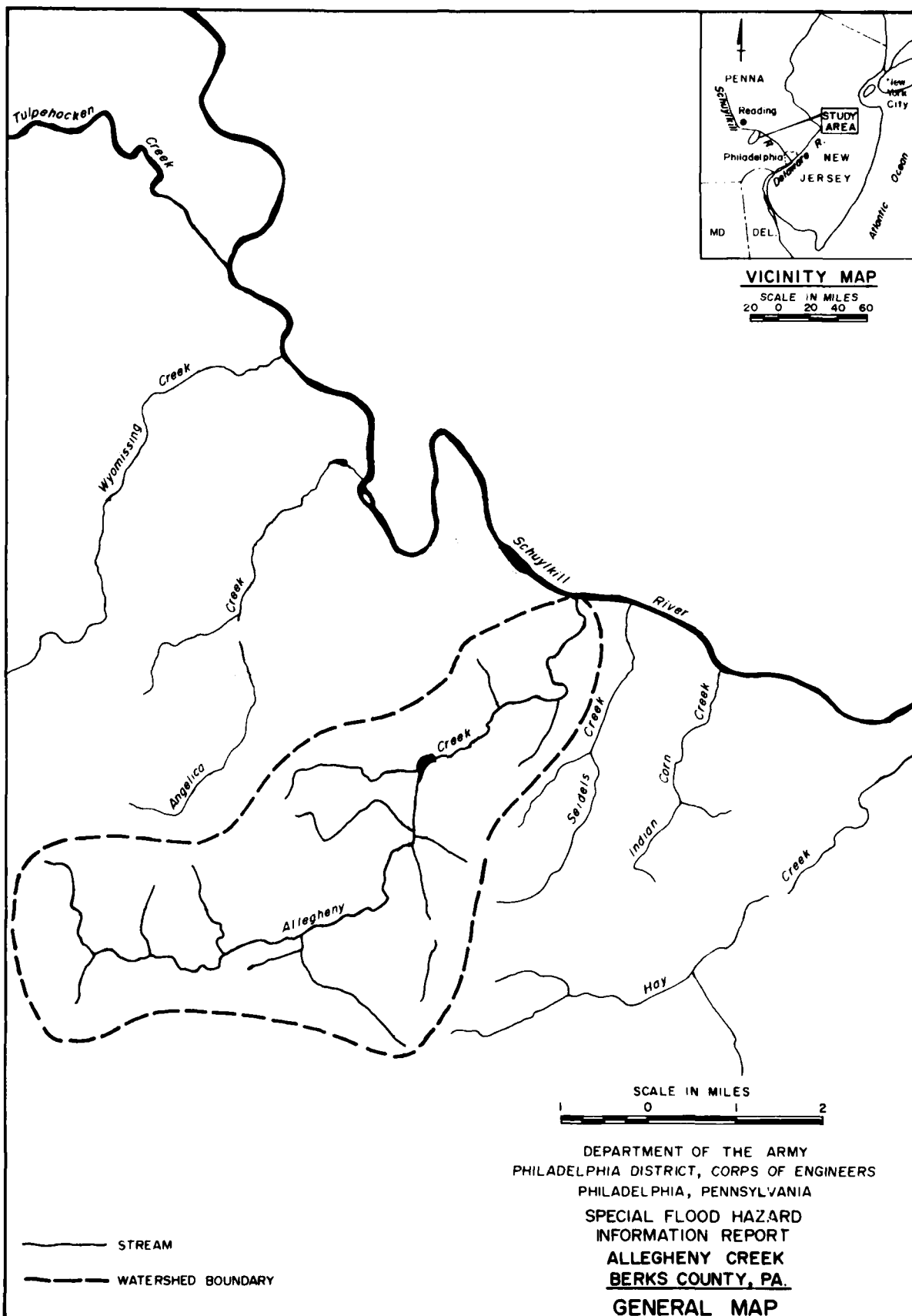
TABLE 4
MAXIMUM VELOCITIES
SELECTED CROSS SECTIONS
ALLEGHENY CREEK

<u>Cross Section</u>	<u>Mileage Above Mouth</u>	<u>Maximum Velocities</u>			
		<u>100-Year Flood</u>		<u>500-Year Flood</u>	
		<u>Channel</u>	<u>Overbank(a)</u>	<u>Channel</u>	<u>Overbank(a)</u>
12	4.64	10.2	2.5	13.7	3.8
17	6.47	9.8	4.0	12.1	5.2
22	9.46	9.1	3.1	11.8	4.3

(a) Value given is maximum of left and right overbank velocity.

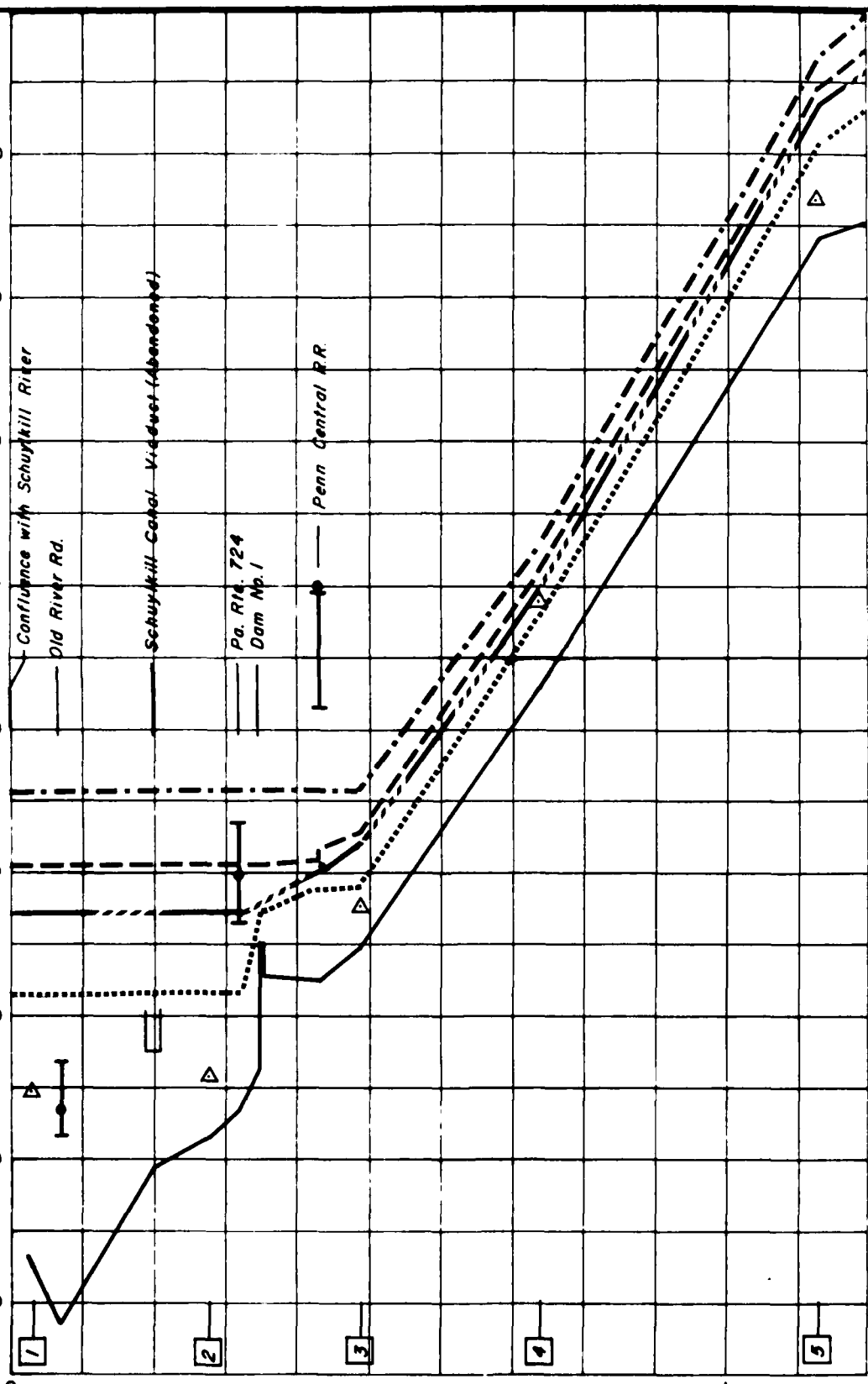
TABLE 5
RATES OF RISE AND DURATION OF FLOODING
ALLEGHENY CREEK
100-YEAR FLOOD

<u>Location</u>	<u>Mileage Above Mouth</u>	<u>Maximum Rate of Rise ft/hr</u>	<u>Height of Rise ft</u>	<u>Time of Rise hrs</u>	<u>Duration of Critical Stage hrs</u>
<u>Cross Section</u>					
12	4.64	1.3	3.2	3.6	22.4
17	6.47	0.5	2.1	5.1	24.2
22	9.46	0.6	1.5	2.9	13.4



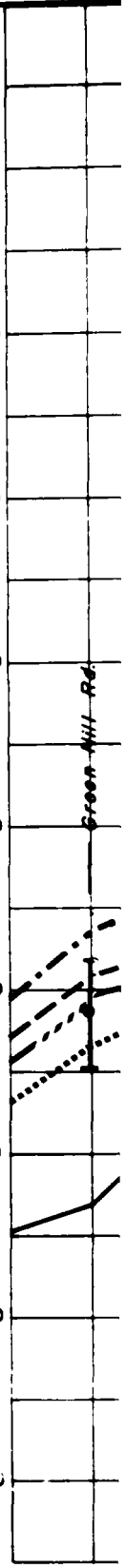
ELEVATION IN FEET SEA LEVEL DATUM

230
220
210
200
190
180
170
160
150



ELEVATION IN FEET SEA LEVEL DATUM

290
280
270
260
250
240
230
220
210



MILES

ELEVATION IN FEET SEA LEVEL DATUM

290
280
270
260
250
240
230
220
210

MILES ABOVE MOUTH

6

7

8

9

Green Hill Rd.

White Bear Rd.

Private Rd.

Private Rd.
Private Rd.

Evergreen Rd.

Green Hill Rd.

500 YEAR FLOOD

100 YEAR FLOOD

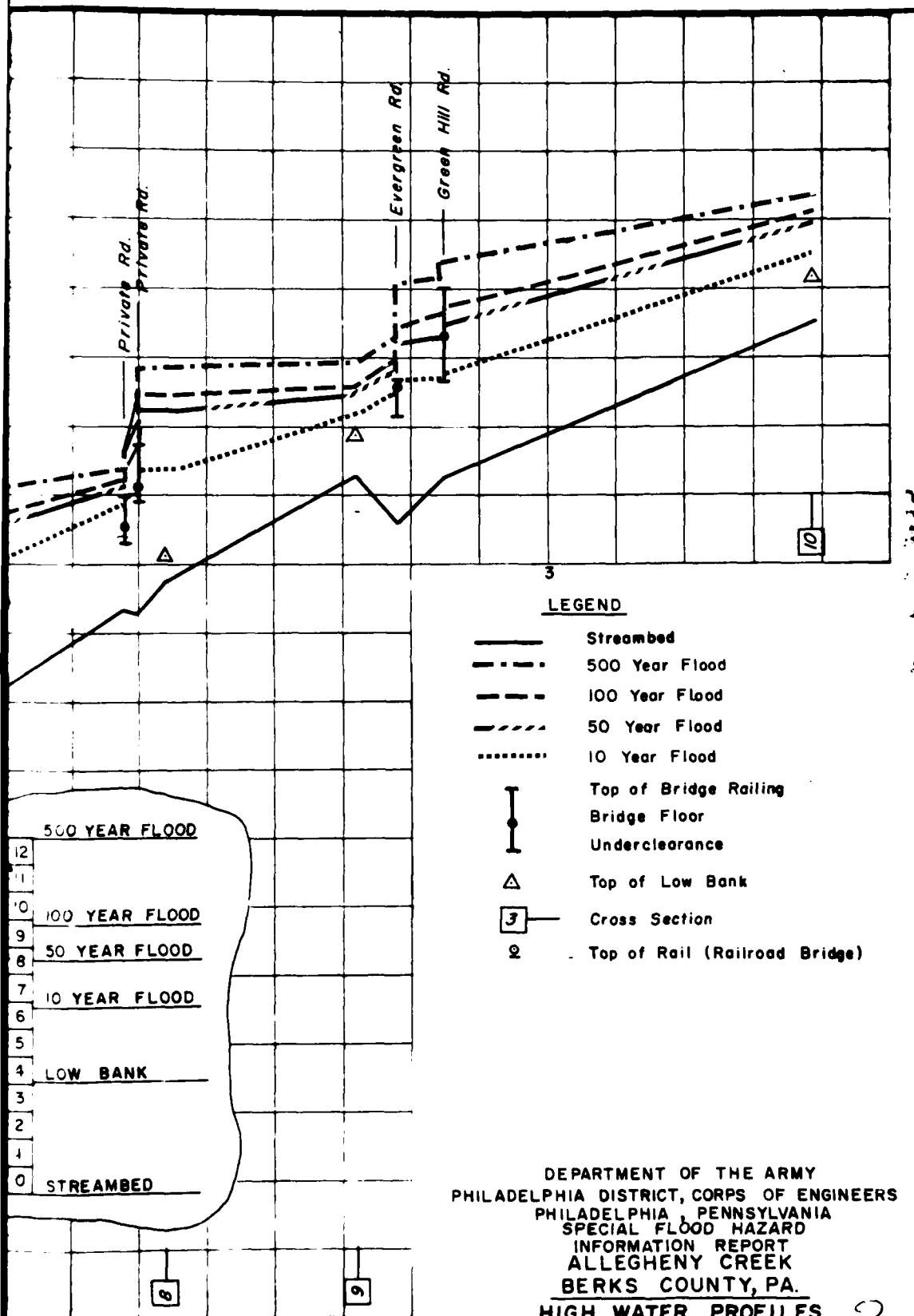
50 YEAR FLOOD

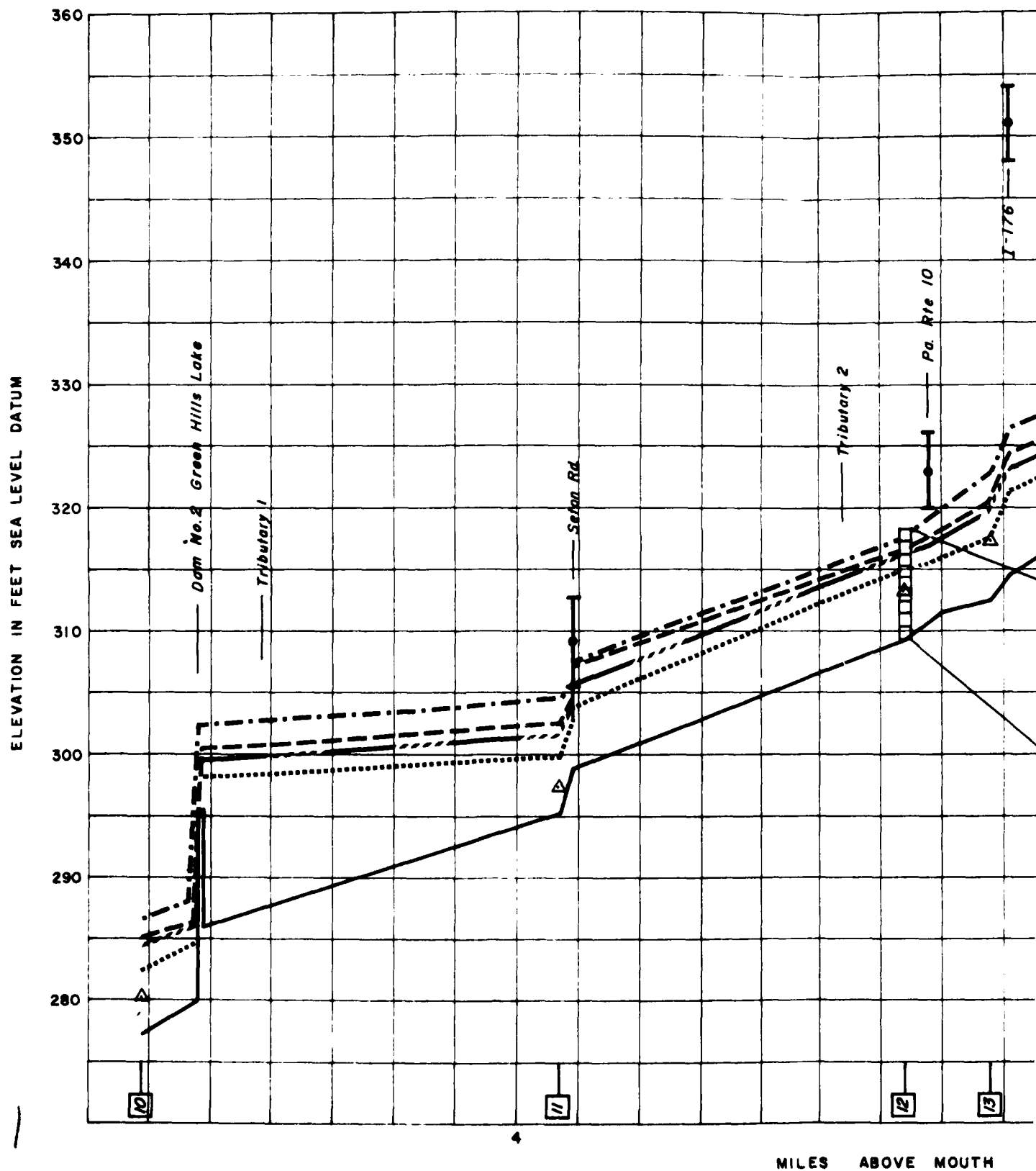
10 YEAR FLOOD

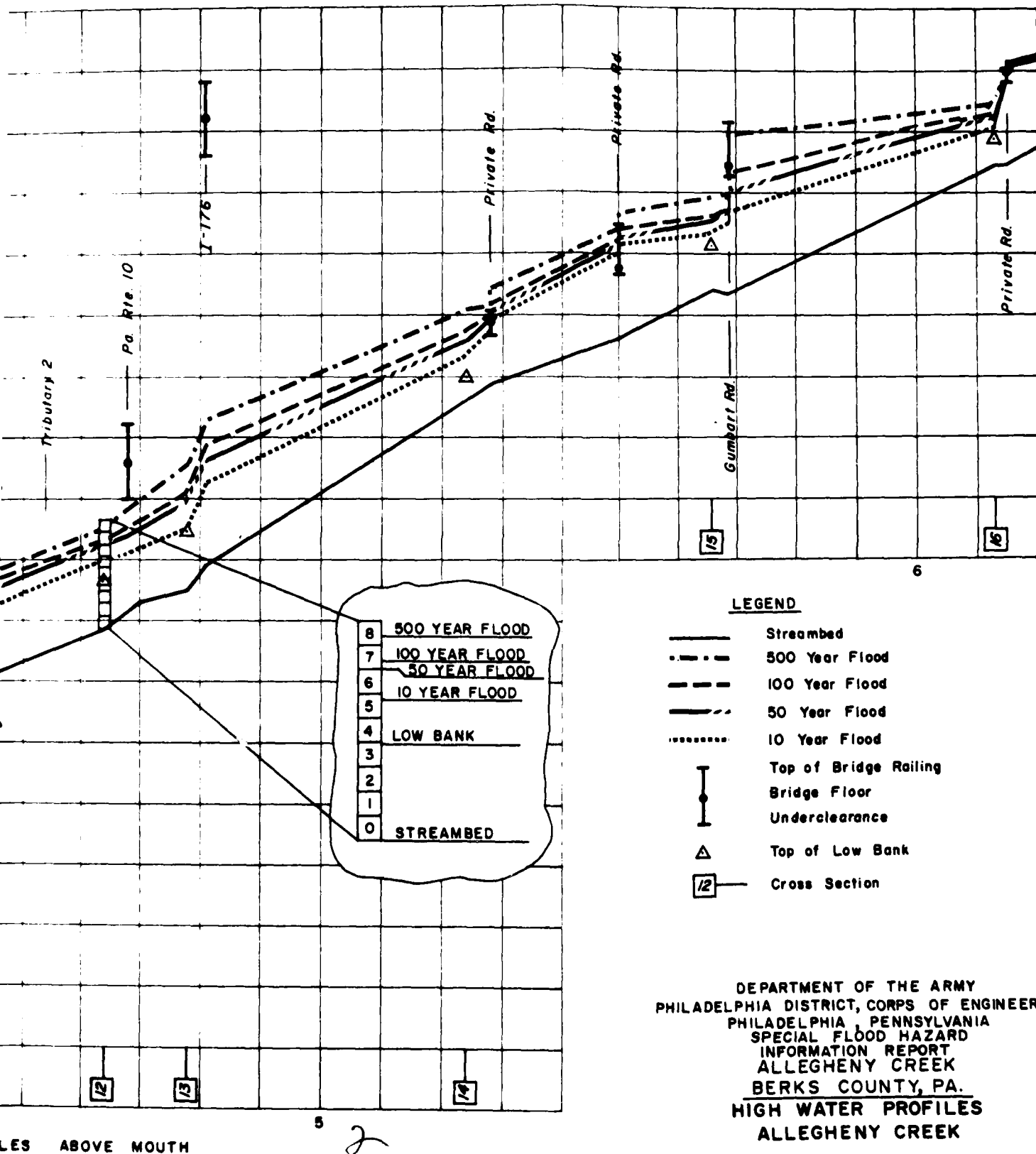
LOW BANK

STREAMBED

PHIL







ELEVATION IN FEET SEA LEVEL DATUM

430
420
410
400
390
380
370
360
350

Tributary 3

Hartz Stock Rd. (Pa. Rte. 325)

Gibhart School Rd

- 5 500 YEAR FLOOD
- 4 100 YEAR FLOOD
- 3 10 YEAR FLOOD
- 2 LOW BANK
- 1
- 0 STREAMBED

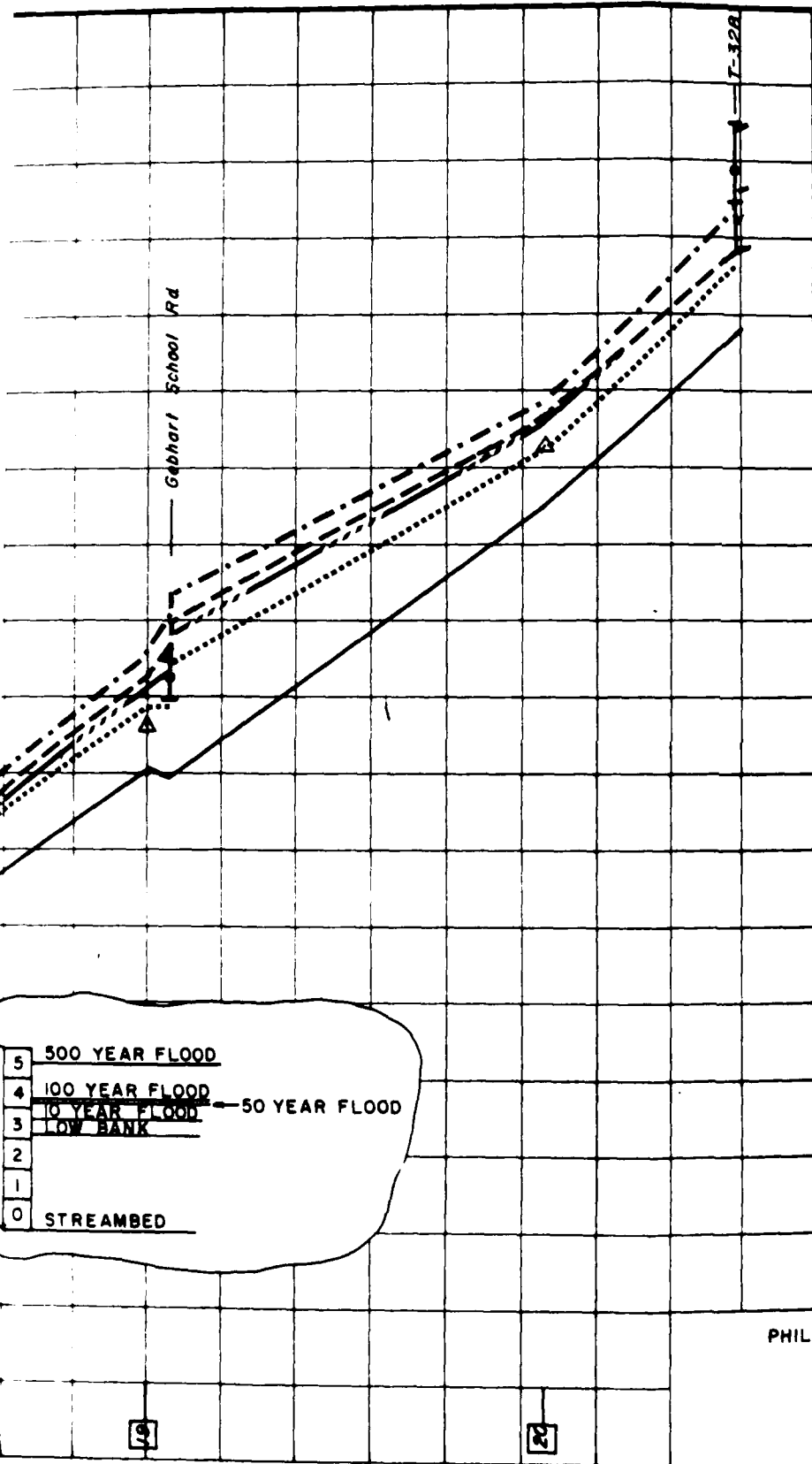
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18

19

7

MILES ABOVE MOUTH

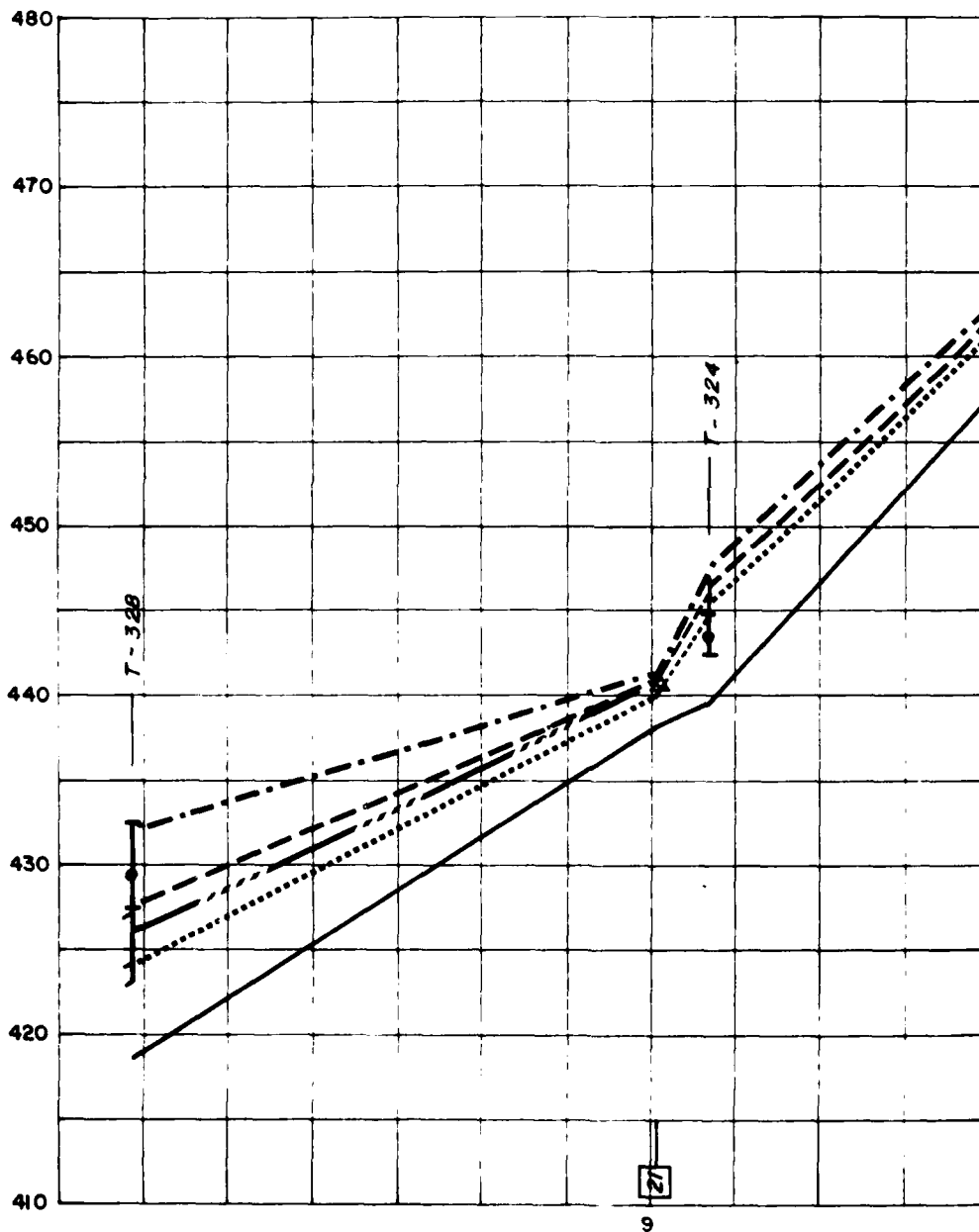


LEGEND

- Streambed
- - - 500 Year Flood
- - - 100 Year Flood
- - - 50 Year Flood
- - - 10 Year Flood
- ⌋ Top of Bridge Railing
- Bridge Floor
- ⌋ Underclearance
- △ Top of Low Bank
- ▣ Cross Section

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 ALLEGHENY CREEK

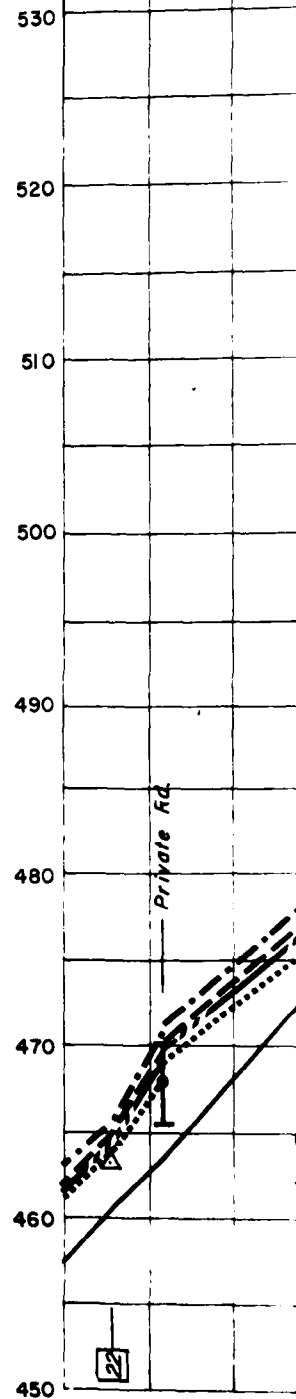
ELEVATION IN FEET SEA LEVEL DATUM



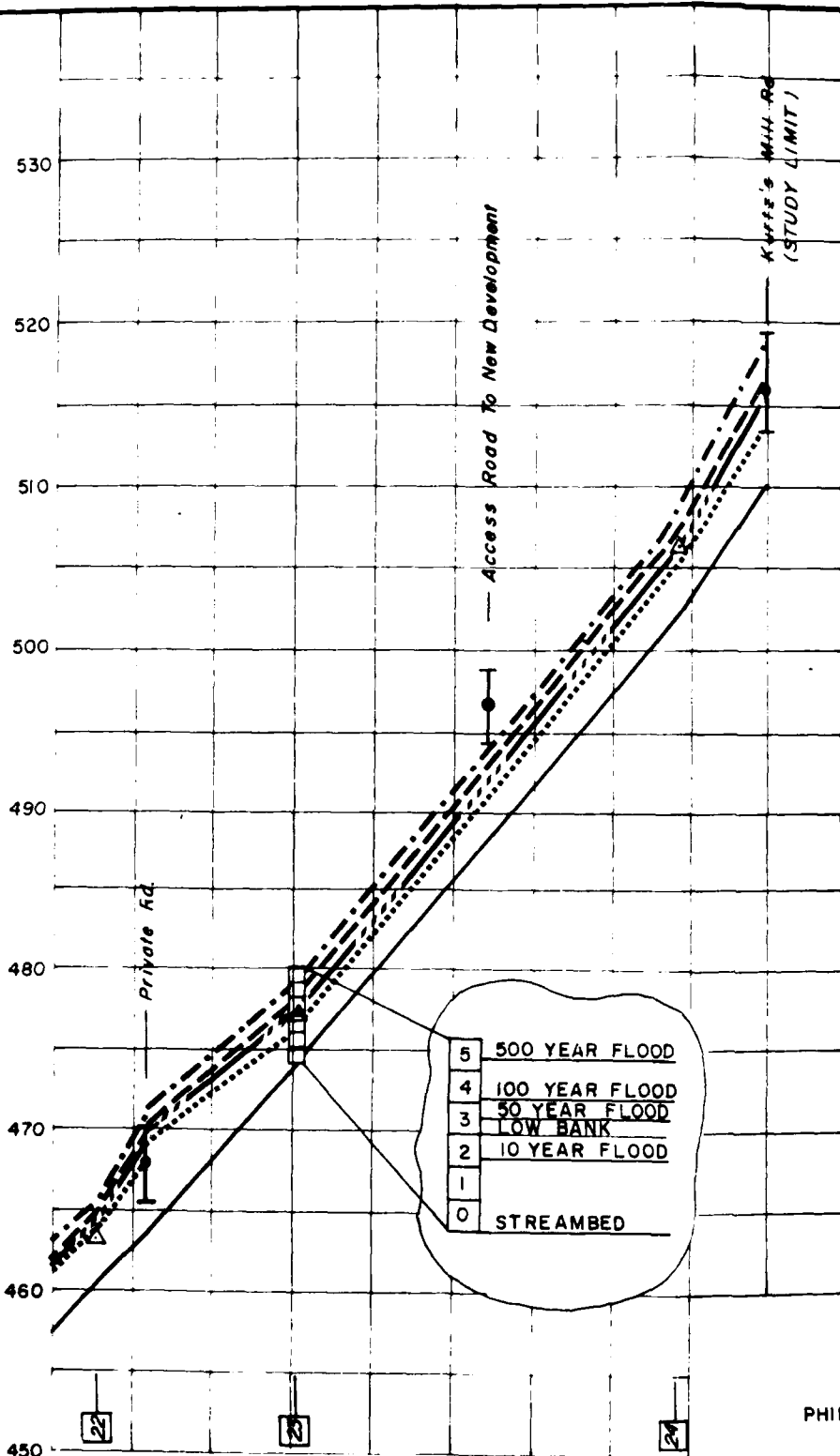
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MILES ABOVE MOUTH

ELEVATION IN FEET SEA LEVEL DATUM



2

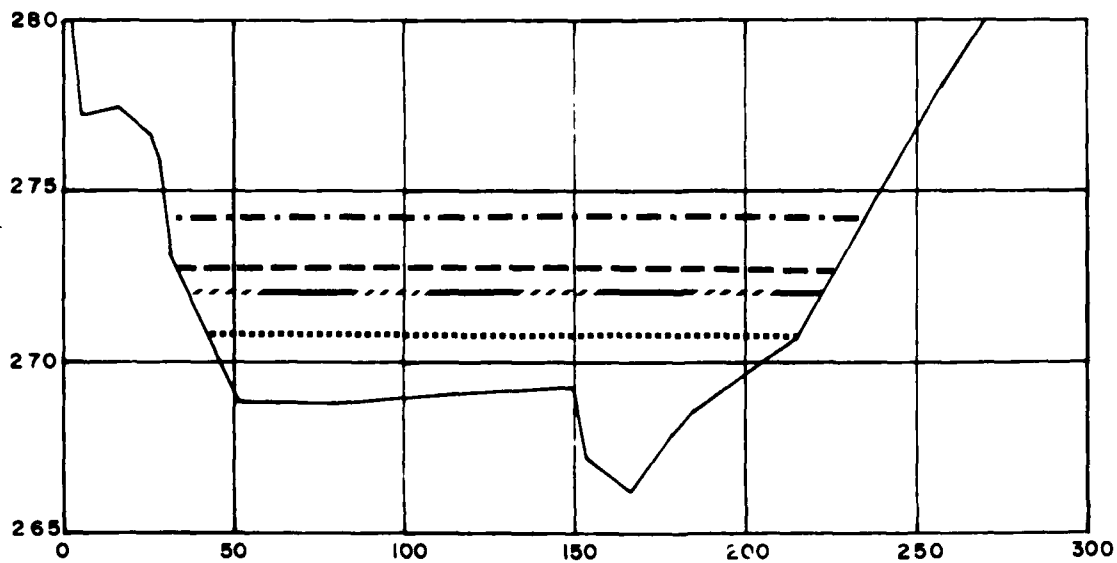
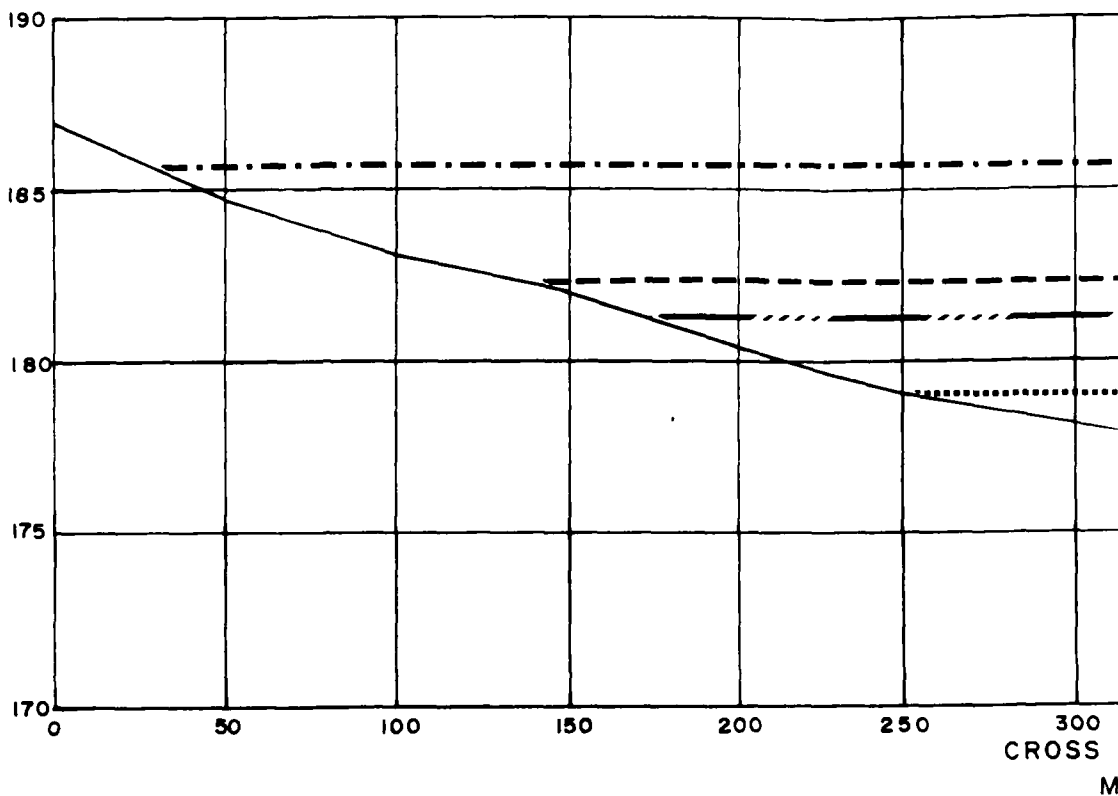


LEGEND

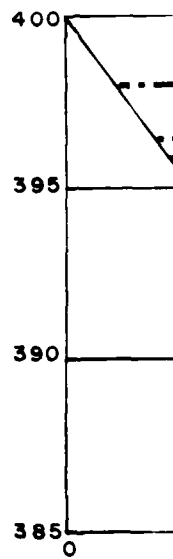
- Streambed
- - - 500 Year Flood
- - - 100 Year Flood
- . - 50 Year Flood
- 10 Year Flood
- ┌─┐ Top of Bridge
- Bridge Floor
- └─┐ Underclearance
- △ Top of Low Bank
- 21 Cross Section

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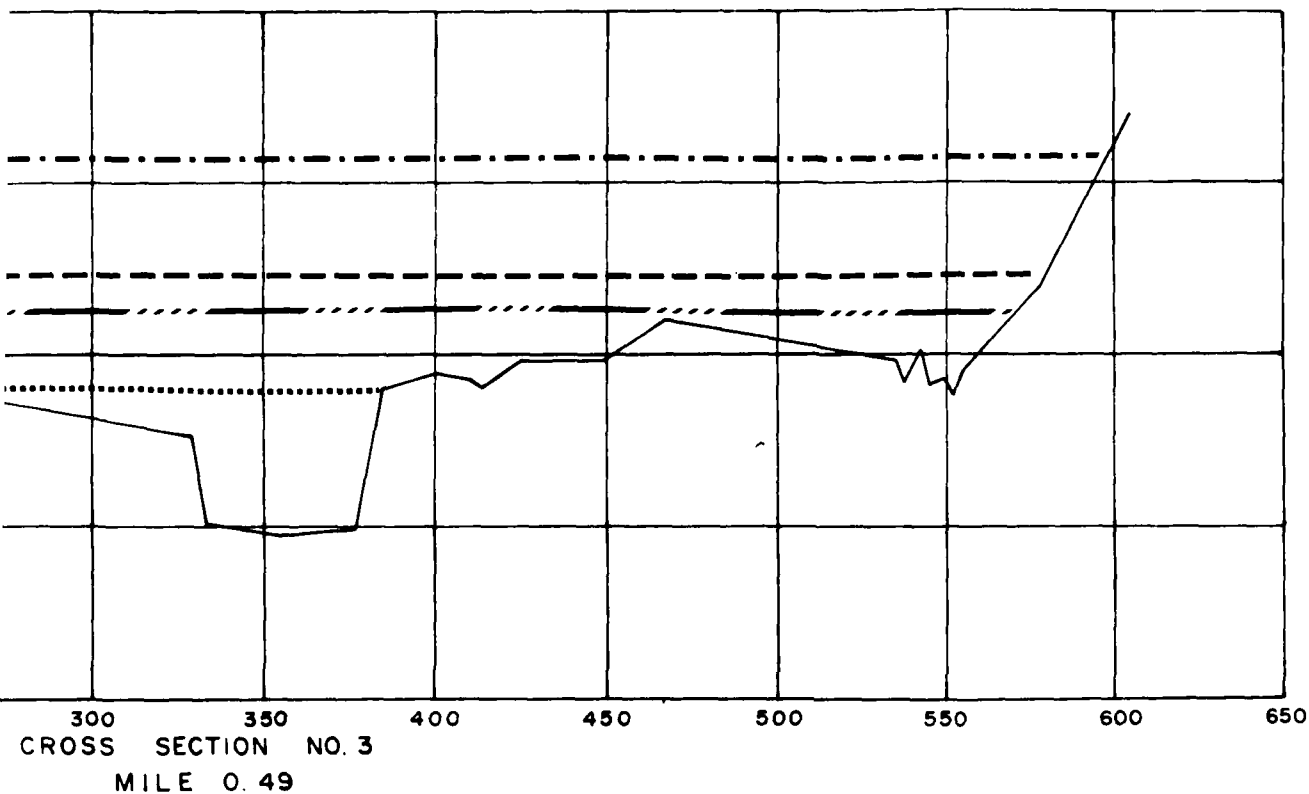
ELEVATION IN FEET SEA LEVEL DATUM



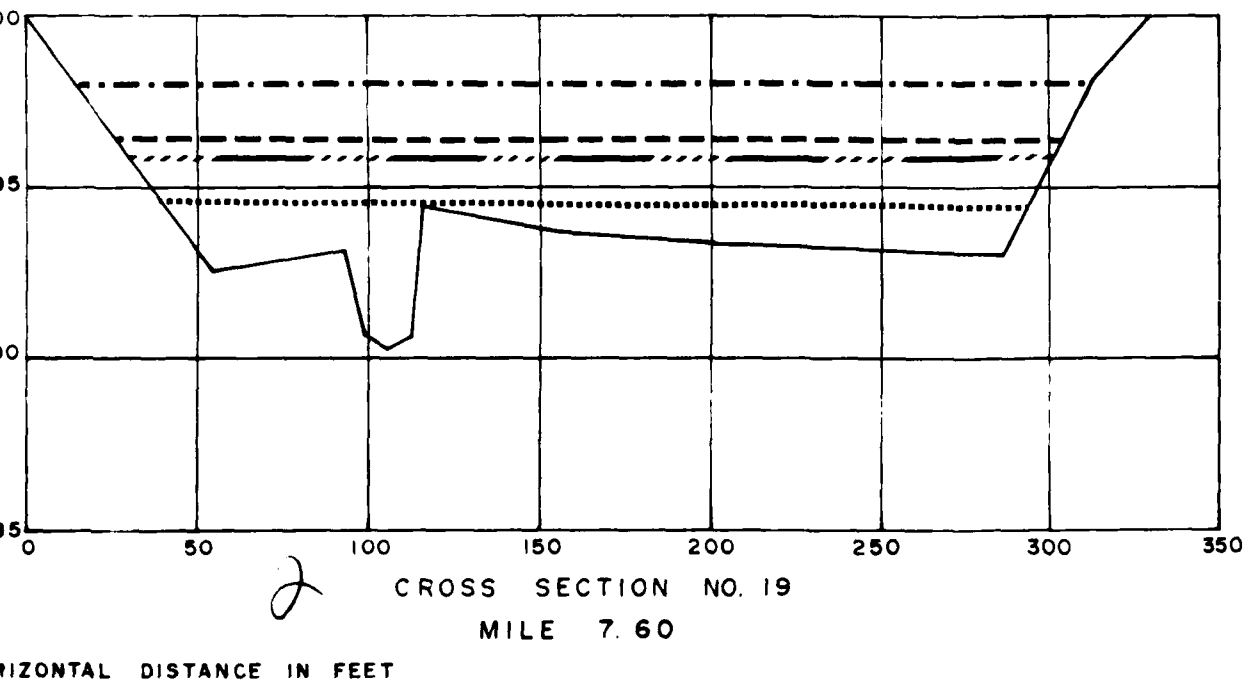
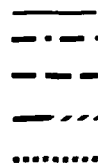
CROSS SECTION NO. 9
MILE 2.72



HORIZONTAL



LEG

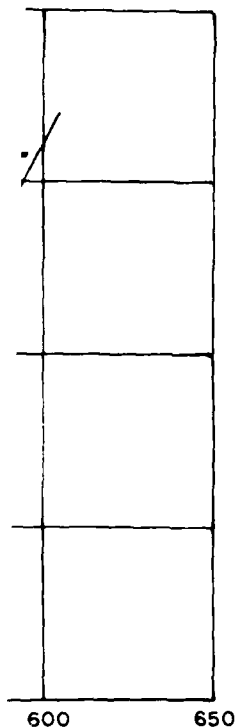


NOTE:
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not shown in
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and are availa

Cross Sections

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PHIL
SR
A
B
SELEC
A

HORIZONTAL DISTANCE IN FEET



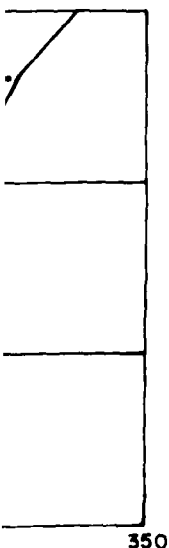
LEGEND

- Ground Line
- - - - 500 Year Flood
- - - - 100 Year Flood
- - - - 50 Year Flood
- 10 Year Flood

NOTE:

The 21 Cross Sections on Allegheny Creek not shown in this report are on file at the Philadelphia District Corps Of Engineers and are available for inspection upon request.

Cross Sections taken looking Downstream



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SELECTED CROSS SECTIONS
ALLEGHENY CREEK

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